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10/722,166	11/26/2003	Hitoshi Kudo	123733	7518
7055	7590	12/15/2005	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C.			LEUNG, JENNIFER A	
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RESTON, VA 20191			PAPER NUMBER	

1764

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,166

Applicant(s)

KUDO ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-29 is/are allowed.
- 6) ☒ Claim(s) 30-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on July 15, 2005 has been received and carefully considered. The corrections made to claims 9, 16 and 24 are acceptable. The corrections made to the specification are acceptable. Claims 1-44 remain active.

Specification

2. The amendment filed on July 15, 2005 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

In column 14, lines 30-40, in the last sentence of the paragraph, Applicants have introduced the statement that,

“... cooling of the outside surface of the CO oxidation unit is obtainable by atmospheric, raw material or water cooling.”

It is unclear as to where support may be found in the original disclosure for the cooling to be conducted by “raw material or water cooling,” since it appears that raw material and water are supplied to the apparatus as a mixture, thereby causing the cooling of the outside surface of the CO oxidation unit to be conducted by a “raw material and water mixture cooling.” For example, FIG. 6 shows “Raw material + Water” being introduced as a mixture via raw material supply path 6, on the outside surface of CO oxidation unit 4. Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 30-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 30 (lines 14-16) and claim 42 (lines 20-21), it is unclear as to where the limitation, "said CO oxidation unit including an outside surface, and being arranged to be cooled by atmospheric, raw material or water cooling of the outside surface," finds support in the original disclosure, because it is unclear as to where the "raw material or water cooling" is located in the specification and drawings. In contrast, it appears that raw material and water are supplied to the apparatus as a mixture, thereby causing the cooling of the outside surface of the CO oxidation unit to be conducted by a "raw material and water mixture cooling." For example, FIG. 6 shows "Raw material + Water" being introduced as a mixture via raw material supply path 6, on the outside surface of CO oxidation unit 4.

Regarding claims 40, 41, 43 and 44, the same comments as above apply.

Response to Arguments

4. Applicant's arguments filed on July 15, 2005 have been fully considered but they are not persuasive. Regarding the new matter objection to the specification under 35 U.S.C. 132 and

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the new matter rejection to claims 30-44 under 35 U.S.C. 112, first paragraph, the M.P.E.P. states that any newly added limitations to the specification or claims must be supported in the originally filed application through “express, implicit, or inherent” disclosure. The Examiner asserts that the newly added limitations to the specification and claims that call for “raw material or water cooling of the outside surface of the CO oxidation unit” are not supported in the originally filed application through “express, implicit, or inherent” disclosure.

Beginning on page 11, last paragraph, Applicants attempt to provide support for the newly added limitations by citing the passage from column 7, beginning at line 48 and continuing to column 8, line 17, of the specification (with emphasis added), wherein,

“In the reforming apparatus according to the present invention, it is preferable that at least a portion of a raw material feed channel for feeding the raw material and steam to the raw material reforming unit is arranged in a position in which the raw material and the steam are preheated by heat from the heat source of the raw material reforming unit (FIGS. 4 to 27).

That is, while the raw material reforming unit is fed with the raw material and steam which are in a state of mixture through the raw material feed channel, the capability of the raw material feed channel being preheated facilitates generation of steam from water in the raw material feed channel and, therefore, water rather than steam can be supplied from a source of the raw material to the raw material feed channel. This dispenses with necessity of use of a separate steam generating apparatus and consequently, a reforming system can be downscaled as a whole. Also, since the preheating of the raw material feed channel allows the raw material and steam to be heated to a temperature close to the temperature range required for the steam reformation, the reformation reaction in the raw material reforming unit can be immediately initiated in an early state of the raw material reforming unit without the temperature of the reformation catalyst therein being lowered.

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Though the method for preheating the raw material feed channel is not limited to specified one, another preheating method may be employed in which, for example, at least a portion of the raw material feed channel is held in contact with the surface of the at least one of the reforming reaction unit, the shift reaction unit and the CO oxidation unit (FIGS. 3 to 6, 8 to 24, and 26); at least a portion of the raw material feed channel is arranged at a position contactable with the burned exhaust gas from the heat source of the raw material reforming unit (FIG. 7); or at least a portion of the raw material feed channel is arranged at such a position that it can be directly heated by the heat source of the raw material reforming unit (FIGS. 25 and 27)."

The Examiner agrees with Applicants in that one having ordinary skill in the art, upon reading the above cited passage, would have readily understood that Applicants had possession at the time of filing the original application of the concept that the water can be preheated to form steam, and the preheating can be accomplished by at least a portion of the raw material feed channel being held in contact with the surface of the CO oxidation unit. As disclosed above, the raw material feed channel supplies "raw material and steam which are in a state of mixture" to the raw material reforming unit.

In addition, Applicants attempt to provide support for the newly added limitations by citing the following passages:

At column 14, first full paragraph, of the specification (with emphasis added),

"The reforming reaction unit 2 has a lower end fluid-connected with a raw material supply path 6. This raw material supply path 6 includes a raw material pipe 6a for the supply of only a reforming raw material therethrough and a steam pipe 6b for the supply of a steam (water) therethrough, both of said pipes 6a and 6b being joined together on their length. The steam pipe 6b has a portion disposed having been coiled around and in contact with the outer periphery of the reforming unit 2 so that it can be preheated by heat evolved from the reforming reaction unit 2."

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At column 23, first full paragraph, of the specification (with emphasis added),

“The reforming reaction unit 2 comprises a coiled pipe filled with a reforming catalyst and has an upper end portion led outwardly from the upper position of the combustion chamber 1 and fluid-connected with a raw material supply path 6. This raw material supply path 6 includes a raw material pipe 6a for the supply of only a reforming raw material therethrough and a steam pipe 6b for the supply of a steam (water) therethrough, both of said pipes 6a and 6b being joined together on their length. The steam pipe 6b has a portion disposed having been coiled around and in contact with the outer periphery of the combustion chamber 1 so that it can be preheated by heat evolved from the combustion chamber 1. The reforming reaction unit 2 has a lower end portion fluid-connected with an upper end portion of the shift reaction unit 3 through a connection tube that is led outwardly from the upper portion of the combustion chamber 1 after having extended through a center region of the combustion chamber 1.”

The Examiner again agrees with Applicants in that one having ordinary skill in the art, upon reading the above cited passages, would have readily understood that Applicants had possession, at the time of filing the original application, a raw material supply path composed of separate pipes for the supply of raw material or water, respectively.

HOWEVER, the Examiner respectfully disagrees with Applicants' assertion that one of ordinary skill in the art, upon reading the above cited passages, would have readily understood that Applicants had possession, at the time of filing the original application, the concept that the raw material and the water can be fed and preheated in separate pipes in contact with the surface of the CO-oxidation unit. As indicated above, the separate pipe 6b for supplying water is only disclosed as being either “coiled around and in contact with the outer periphery of the reforming unit 2” or “coiled around and in contact with the outer periphery of the combustion chamber 1”.

The cited passages do not expressly, implicitly, or inherently disclose either of the separate pipes

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6a,6b being held in contact with the outside surface of the CO-oxidation unit 4.

The Applicant has directed the Examiner to FIGS. 8-19, 21, 22, 23a, 23b, 24, 26, 27a and 27b to illustrate that portions of the raw material supply path can separately supply raw material or water. The specific locations of each of the raw material pipe **6a** (containing raw material only, e.g., a hydrocarbon), the steam pipe **6b** (containing water/steam only) and the raw material supply path **6** (containing a mixture of raw material and steam) are noted in the table below:

	PIPE OR PATH LOCATION		
FIGURE	RAW MATERIAL PIPE 6a	STEAM PIPE 6b	RAW MATERIAL SUPPLY PATH 6
8-19, 21, 22	Not held in contact with any of the outside surfaces of reforming reaction unit 2, shift reaction unit 3 or CO oxidation unit 4.	Held in contact with outside surface of reforming reaction unit 2.	Not held in contact with any of the outside surfaces of reforming reaction unit 2, shift reaction unit 3 or CO oxidation unit 4; feeds directly to reforming reaction unit 2.
23(A), 23(B), 24, 26	Not held in contact with any of the outside surfaces of reforming reaction unit 2, shift reaction unit 3 or CO oxidation unit 4.	Held in contact with outside surface of combustion chamber 1.	Within combustion chamber 1.
27(A), 27(B)	Not held in contact with any of the outside surfaces of reforming reaction unit 2, shift reaction unit 3 or CO oxidation unit 4.	Held in contact with outside surfaces of combustion chamber 1.	Within combustion chamber 1.

In each case, the Examiner notes that neither the separate pipe for raw material only (i.e., raw material pipe **6a**), nor the separate pipe for water only (i.e., steam pipe **6b**), is held in contact with the outside surface of the CO-oxidation unit 4.

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The only instances where any portions of the raw material and/or water supplies are held in contact with the surface of the CO-oxidation unit 4 are shown in FIGS. 3, 4, 5 and 6.

	PIPE OR PATH LOCATION		
FIGURE	RAW MATERIAL PIPE 6a	STEAM PIPE 6b	RAW MATERIAL SUPPLY PATH 6
3-5	Not Applicable	Not Applicable	Held in contact with the outside surfaces of reforming reaction unit 2, shift reaction unit 3 and CO-oxidation unit 4.
6	Not Applicable	Not Applicable	Held in contact with the outside surfaces of shift reaction unit 3 and CO-oxidation unit 4.

In each case, the Examiner notes that the mixture of raw material AND water fed to the raw material supply path 6 is held in contact with the surface of the CO oxidation unit 4. None of FIGS. 3-6 provides support for the feeding of raw material OR water separately, in contact with the outside surface of the CO oxidation unit 4.

Although Applicant may point to the disclosure in column 8, lines 5-17, which states,

“Though the method for preheating the raw material feed channel is not limited to specified one, another preheating method may be employed in which, for example, at least a portion of the raw material feed channel is held in contact with the surface of at least one of the reforming reaction unit, the shift reaction unit and the CO oxidation unit (FIGS. 3 to 6, 8 to 24, and 26);”

to suggest that one of ordinary skill in the art would have realized that Applicant had possession of other configurations for the raw material supply path in the apparatus, e.g., pipes for separately feeding raw material OR water being held in contact with the surface of the CO

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oxidation unit, it is noted that none of referred figures (FIG. 3 to 6, 8 to 24, and 26) for illustrating "another preheating method" disclose such a configuration. Only the raw material supply path 6, which contains BOTH the raw material AND the water in mixture, is shown as being held in contact with the outside surface of the CO oxidation unit 4. To arrive at Applicants' claimed configuration of a separate raw material pipe 6a or a separate water/steam pipe 6b held in contact with the outside surface of the CO oxidation unit 4 would require a level of "obviousness" that is beyond the realm of the "express, implicit, or inherent" requirement for determining the presence of new matter.

Allowable Subject Matter

5. Claims 1-29 are allowable for the same reasons set forth in the parent application, U.S. Application Serial No. 09/214,001, now U.S. Patent No. 6,413,479.

6. The following claims drafted by the Examiner and considered to overcome the new matter rejections are presented to Applicant for consideration:

In claim 30, lines 15-16, change the limitation to read,

--said CO oxidation unit including an outside surface, and being arranged to be cooled by at least one of atmospheric cooling and a combination of raw material and water cooling of the outside surface--.

Cancel claim 41 and change the limitation in claim 40 to read,

--wherein said CO oxidation unit is arranged to be cooled by a combination of raw material and water cooling of the outside surface.--

In claim 42, lines 20 and 21, change the limitation to read,

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--said CO oxidation unit including an outside surface, and being arranged to be cooled by at least one of atmospheric cooling and a combination of raw material and water cooling of the outside surface--.

Cancel claim 44 and change the limitation in claim 43 to read,

--wherein said CO oxidation unit is arranged to be cooled by a combination of raw material and water cooling of the outside surface--.

Reissue Applications

7. Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 6,413,479 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation. Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application. These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

Conclusion

8. **THIS ACTION IS MADE FINAL.** As set forth in 37 CFR 1.136(a), a shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory

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period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449.

The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

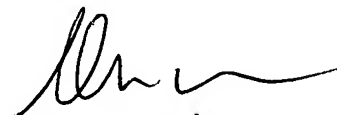
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
September 27, 2005



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PRIMARY EXAMINER



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